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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,069	07/03/2003	Mark Alexander Groninger	0142-0416P	3514
2292	7590	09/13/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			NGUYEN, LAM S	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/612,069	Applicant(s) GRONINGER ET AL.	
	Examiner LAM S. NGUYEN	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings received on 06/23/2005 are accepted. As a result, the previous objection has been withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Zapka et al. (WO 01/36202 A1).

Referring to claims 1, 7-8:

Zapka et al. discloses a method of controlling substantially closed duct in which ink is situated (*FIG. 10, element 2a*), said duct having at least one exit opening for the ink (*FIG. 10, element 6*), which comprises:

applying an actuation pulse (*FIG. 3-4*) to an electro-mechanical transducer (*FIG. 10*) so that the pressure in the duct changes in such a manner that an ink drop is ejected from the exit opening (*FIG. 10, element 7*) (*page 16, lines 1-10 and page 6, lines 25-29: An electrical signal is applied to the actuator to raise pressure in the liquid chamber by deforming the walls to cause liquid in the chamber to be ejected*),

measuring the electric impedance of the electromechanical transducer during the

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application of the said pulse (*page 6, lines 30-32: Means for measuring an impedance in at least one piezoelectric portion of the actuator*), and

adapting this actuation pulse on the basis of the measured impedance (*page 6, line 32 to page 7, line 2: Means for adjusting the waveforms of said electric signals in response to the measured impedance*).

Referring to claims 2-3: wherein a voltage/actuation pulse is applied to the electromechanical transducer and a reacting current generated by the electromechanical transducer is measured (*page 11, lines 10-15: In accordance to each drive voltage signal source, the converter outputs a corresponding current control signal. Page 9, line 32 to page 10, line 10: The waveform is obtained in response to the currents I2 and I3*).

Referring to claims 4-5, 6: which is used to attain the pressure required to eject the drop at a specific speed and at a predetermined time and which is used to change the pressure after the ejection of the drop (*Because the claims are the method of controlling, the step of using the method is not an essential element of the process. Therefore, the claim elements are considered but not given patentability weight*).

Referring to claim 6: wherein after the ejection of the drop, the pressure is brought substantially to a reference value (*FIG. 11: After the deformation, the walls 47 and 49 move back to the original positions. As a result, the pressure is brought back to an initial value*).

Response to Arguments

- Applicant's arguments, see page 5, 2nd and 3rd paragraphs, filed 06/23/2005, with respect to the 112 rejection regarding to claims 2-3 have been fully considered and are persuasive. The 112 rejection of the office action mailed on 02/23/2005 has been withdrawn.

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- Applicant's arguments filed 06/23/2005 regarding the 102 rejection have been fully considered but they are not persuasive. The applicant argued that Zapka's teaching is contrast with the present invention in which the impedance of a transducer that is actuated with the intention of actual ink drop ejection is measured, and not the impedance of a transducer corresponding to a dummy duct. In response, the examiner cites that as based on the disclosure on page 6, line 25 to page 7, line 2, there is no dummy duct involved in the process for defining/adjusting the waveform. In fact, the impedance of at least one piezoelectric portion of an actuator that is deformed by a received electric signal to cause liquid ejection is measured in order to adjust the electric signal accordantly. Therefore, the prior art disclosure reads on the applicant's invention as claimed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN
09/07/2005


HAI PHAM
PRIMARY EXAMINER